Prevalence, causes and consequences of compassion satisfaction and compassion fatigue in emergency care: A mixed methods study of UK NHS Consultants

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ABSTRACT

Objective: To estimate prevalence and explore potential causes and consequences of compassion satisfaction and compassion fatigue in UK emergency medicine consultants.

Methods: A sequential mixed-methods design. Cross-sectional e-survey to all UK NHS emergency medicine consultants (n=1317) including PROQOL (compassion satisfaction /fatigue), followed by interviews with consultants scoring above (n=6) and below (n=6) pre-defined PROQOL thresholds.

Results: 681 (52%) consultants responded. Most (98%) reported at least 'average' compassion satisfaction. Higher scores were associated with type of workplace (designated trauma centres faring better) and number of years worked as a consultant (gradually worsen over time except 20 years onwards when improves). Consultants with lower (worse) compassion satisfaction scores were more likely to report being irritable with patients or colleagues and reducing their standards of care (a third reported these behaviours at least monthly) and were more likely to intend to retire early (59% had such plans). Key features distinguishing 'satisfied' from 'fatigued' interviewed consultants included having strategies to deal with the high work intensities associated with their role and having positive views of the team within which they worked. The degree of variety in their roles and the ability to maintain empathy for their patients were also distinguishing features between these groups.

Conclusions: Findings support an urgent review of workforce and resources in Emergency medicine and suggest that a multi-factorial approach to identification, prevention and treatment of occupational stress in the workforce is required that considers individual, job and organisational factors, particularly those that impact on perceived control and support at work.

INTRODUCTION

Background

A recent report from the King's Fund on Health and Social Care in England revealed an emergency care system under pressure with more patients waiting over 4 hours and waiting for admission to hospital than at any time since 2003[1].

The ability of emergency service staff to provide high quality clinical care will depend on a variety of factors however continued pressure on staff within this challenging clinical environment, may lead to stress, burnout and a loss of compassion, resulting in poor quality care. Previous research into stress amongst doctors supports this link between the work environment, stress and impacts on patients and clinical teams[2-5].

The potential implications for patients in an emergency care system which lacks compassion have been identified in a number of reports. The report by the Health Service Ombudsman into care and compassion for older people highlighted failings within the National Health Service (NHS) and in particular, emergency care[6]. In addition, the Public Inquiry which examined the serious failures in care at the Mid Staffordshire NHS Foundation Trust between 2005 and 2008 also highlighted the need for caring, compassionate and committed staff as key in the provision of a NHS where patients are the first priority. Furthermore, the report of this public inquiry stated that consultants should be leaders in the promotion of a culture that is committed, caring and compassionate[7]. We sought to assess the current prevalence, causes and consequences of compassion satisfaction and compassion fatigue in UK NHS emergency medicine consultants.

METHODS

Study design

A sequential mixed methods design was applied[8]. A national e-survey was administered to estimate the prevalence of compassion satisfaction and compassion fatigue and to provide the sampling frame for subsequent interviews aimed at describing causal and protective factors.

National Survey

An electronic survey was sent to all consultants in emergency medicine working in UK emergency departments in April 2012. Consultants were identified using the UK College of Emergency Medicine's database of Fellows. Duplicate and undeliverable email addresses, non-UK-based consultants, and consultants who had not worked in the previous 30 days (e.g. due to maternity or other long term leave) were removed from the denominator, leaving a sample of 1317 consultants. This was in line with NHS workforce statistics which showed that in 2012 there were 1279 WTE Consultants in Emergency Medicine in the NHS[9].

The survey was designed using SurveyMonkey® and consisted of three parts:

(1) The ProQOL questionnaire[10]: 30-items rated according to frequency over the previous 30 days on a 1-to-5 scale (1 = Never, 5 = Very Often). Ratings summed to produce scores for compassion satisfaction (10 items) and the two components of compassion fatigue: burnout (10 items, some items reverse scored) and secondary traumatic stress (10 items). Thresholds for summed totals based on 25th and 75th centiles are: 22 or less – below average (indicating low compassion satisfaction (less desirable) or low burnout (more desirable) or low secondary traumatic stress (more desirable)), 23-41 – average, 42 or more – above average.

(2) Demographic and job characteristics: age group, sex, marital status, number of children <18 living at home, type of workplace, number of years worked as a consultant and years in current consultant post (see table 1 for categories).

(3) Potential impacts of compassion fatigue: using an adapted scale[11] measuring the frequency (on a 4 point scale, see table 4) that stress at work over the previous six months had caused irritability with patients, irritability with colleagues, reductions in standards of care, or making mistakes that could or did harm patients. Consultants were also asked whether they planned to retire early (yes/ no).

Consultants were assigned a unique identifier to maintain confidentiality. Details of support services were also provided. Participants were asked to provide their e-mail address if willing to consider participating in an interview.

Interviews

Two groups of consultants were identified and invited to participate: A 'SATISFIED' group consisted of consultants who had scored above average in compassion satisfaction and below average in both components of compassion fatigue. A 'FATIGUED' group consisted of consultants who had scored above average in *either* of the components of compassion fatigue *or* below average in compassion satisfaction. Six consultants were purposively selected from each group (12 in total) to aim at geographical spread and gender balance. Interviews took place in November 2012 and were conducted by an independent researcher trained in qualitative methods (PG). As the study aims were to explore protective and contributory factors for compassion satisfaction and compassion fatigue both the interviewer and interviewee were aware of the interviewee's ProQOL scores at the time of interview. All interviews followed a topic guide and lasted 30-50 minutes and were digitally recorded and transcribed.

Analysis

Demographic survey data was analysed descriptively. Raw ProQOL scores were converted to standardised scores prior to analysis and categories for 'below average', 'average' and 'above average' were calculated based on thresholds specified by previous research[10]. The prevalence of compassion satisfaction and compassion fatigue were calculated with 95% (exact binomial) confidence intervals. Multivariate linear regression analysis was conducted to examine the relationships between the outcome variables (compassion satisfaction, burnout and secondary traumatic stress) and independent variables (demographic and work related factors). Logistic regression analysis examined the associations between the potential consequences (impacts on patients, impacts on colleagues and plans to retire) and independent variables (compassion satisfaction, burnout and secondary traumatic stress). Model fit for survey data was analysed using Stata version 11 (Statacorp LP, Texas, USA). Due to the high correlation between 'number of years as a consultant', 'number of years in current post' and 'age', only 'number of years as a consultant' was entered to models.

Interview transcripts were analysed thematically using established best practice methods for qualitative research as described by Braun and Clarke (2006)[12]. Two researchers trained in qualitative analysis (PG and CT) independently familiarised themselves with a random sample of the transcripts to identify, discuss and agree key themes. Care was taken to identify both 'shared' themes (relevant to both groups) and themes only emergent from one group. Transcripts were coded individually according to this initial thematic framework giving the opportunity to highlight any divergent cases or new emergent themes. Following revisions, this led to the development of the final framework which was used to code all transcripts. Due to a key element of the design being the comparison between the SATISFIED and FATIGUED groups, analysis initially focused on highlighting similarities and differences between the narratives of the two groups, and examining relationships between themes, as well as examining similarities and

differences 'within' groups. All analysis was underpinned by a theoretical and empirically supported model of job stress that considers individual and job/organisational level factors[13].

RESULTS

Characteristics of the survey respondents

In total, 681 consultants responded to the survey (response rate 52%). The demographic and work-related characteristics of respondents are shown in table 1. Two thirds were male and most (78%) were aged 30-49 years. Although no demographic data for comparison was collected from non-respondents, NHS workforce data from 30 September 2013 showed a gender split of 69% male and 31% female amongst consultants in emergency medicine. The majority of survey respondents were married and had at least one child (< age 18) living with them. Most worked full-time in an emergency department with one-fifth working in a designated major trauma centre. The average number of years worked as a consultant was eight years (Median: 8 years, Mean: 7.89 years).

Prevalence of compassion satisfaction and compassion fatigue

The prevalence of compassion satisfaction and the two components of compassion fatigue (burnout and secondary traumatic stress) are shown in table 2. Most consultants (98%) reported 'average' or better than average scores. Only 15 consultants (2.3%, 95% CI 1.3, 3.7%) had scores indicating low compassion satisfaction; two of whom reported high burnout (0.3%, 95% CI 0.0, 1.1%) and one reported high secondary traumatic stress (0.2%, 95% CI 0.0, 0.8%).

Relationship with demographic /work related factors

The bivariate relationships of the PROQOL outcomes with demographic and work related factors are shown in Table 3. Multivariate regression models that included all demographic predictors only explained a small amount of the variance in ProQOL scores (R-squared 3-5%, table 4).

The two key variables explaining variance in compassion satisfaction were type of workplace and years worked as a consultant. Working in a designated trauma centre was associated with higher compassion satisfaction compared to working in an emergency department (mean difference 2.5, 95% CI(0.9, 4.07); number of years worked as a consultant had a nonlinear relationship whereby mean compassion satisfaction reduced marginally over first 10 years and increase after 20 years. The two key variables explaining variance in burnout and secondary traumatic stress were marital status and years worked as a consultant. The number of years worked as a consultant for both models had a nonlinear relationship where the mean score marginally increased over first 10 years and decreased after 20 years.

Association with patient care, relationship with colleagues and personal career plans

Around a third of consultants reported that stress at work had caused them to be irritable with patients, irritable with colleagues, or reduce their standards of care at least monthly in the past six months (table 5). A third reported that stress at work had led to them making mistakes that could have harmed a patient at least once or twice in the previous six months, and 11% reported making mistakes that *did* harm a patient. Fifty-nine percent of consultants reported intending to retire early. All reported impacts of stress at work were more common in consultants with lower compassion satisfaction and higher compassion fatigue scores (table 5).

Characteristics of the interview sample

Participant flow from survey to interview sample is shown in figure S1. Within the interview sample, there were more women in the satisfied group than in the fatigued group (four versus two) with the satisfied group representing a younger age range which was also reflected in the lower mean number of years as a consultant (8 vs 10.5) and in current post (7.2 vs 8.3). All satisfied interview participants were married whilst one was single in the fatigued group and all

but one participant in the fatigued group had at least one child under 18 years of age in their household (table 1).

Factors associated with compassion satisfaction and fatigue

The thematic analysis of interview transcripts and in particular the comparison between SATISFIED and FATIGUED consultants resulted in the development of a multi-factorial explanatory model, comprising individual, organisational, and job-related factors, and the hypothesised inter-relationships between them (figure 1). Key elements are described here.

Central to the model is the relationship between job demand, control and support as this emerged as a common theme in accounts from both SATISFIED and FATIGUED consultants. Whilst all consultants reported having a high intensity job (many mentioning increasing patient numbers and staff shortages, particularly middle grade doctors and inexperienced trainees), and most described the challenge of meeting the waiting time target, the FATIGUED consultants particularly expressed their perceived lack of control and/or support at work in relation to such pressures:

"*too much to do, not enough time…unreasonable demands to achieve certain targets despite no additional funding or resources*" (F12); "*the elements that I have control over are outweighed by the magnitude of the effects of other people's decisions that are impacting negatively on the service…when the combination of that lack of control and personal exhaustion comes in you start getting demoralised and don't feel you are able to, you can't be that calm relaxed person you want to be for your staff and for your patients*" (F52).

This high intensity workload was described to impact both physically (through having to work for longer or more intensely due to patient volume) and emotionally (by raising anxiety regarding patient safety and quality of patient care in relation to supporting doctors-in-training and locum

doctors to make appropriate clinical decisions). Work intensity was also exacerbated by on-call responsibilities, particularly where there was no provision for ensuring time to recover from long shifts: *"you can get called after midnight and we still have to function the next day because there's no one else on the rota to do it"* (F32)

On the contrary, SATISFIED consultants highlighted strategies to regain or maintain control over their work. These included coping strategies such as physical activity (i.e. cycling), which gave them time to "*de-stress and think*" (S41) or even simply having a five minute tea-break if they felt themselves becoming irritable. All twelve consultants mentioned the importance of good teamwork as a 'moderator' of the high demand they experienced. A number of satisfied consultants specifically stated that support from their consultant teams was key to preventing/reducing stress and compassion fatigue: *"The spirit of the team is one of the things that helps to keep you from burning out…even on the bad days if I've ever thought I need to go and work somewhere quieter, I wouldn't because even on those bad days the colleagues I have here and the team I work in here are likely to keep me here"* (S21). Others described the importance of the wider team, including secretaries, porters, and cleaners: "*Our cleaner Sam is part of the team*" (S61). Fatigued consultants, on the contrary, were more likely to reflect on the negative impact of poor team relationships: "*You have to maintain working relationships or it is hugely detrimental to the department*" (F42), and either did not mention their colleagues at all or only in relation to feeling unsupported: "*I was starting to get the feeling that I was the only one trying to solve this problem…that feeling of loneliness...would mean that I stopped engaging with colleagues*" (F62).

Another common factor mentioned by four satisfied consultants was the importance of having variety in their job, by having a split clinical and managerial role: "*Not being 100% in emergency...If I did I probably would be more burnt out and more frustrated because a lot of the*

frustration comes from the failure of the systems within the hospital and if you are dealing with that day in day out…so for me to have found kind of an outlet…decreases the stresses from having to work in emergency 100%" (S21). On the contrary, two of the fatigued consultants specifically referred to the repetitiveness of the job as being a contributory factor: "*it's the long hours, the pressures of the job, the repetitiveness of the job and the unreasonable demands of some patients*" (F32).

The desire to provide good patient care was specifically mentioned by a number of satisfied consultants as a key motivator when work was pressured, regardless of whether the patient was seriously ill or not: "*everyone is entitled to be here so don't get annoyed that some people have come with a sore throat*" (S41). However for some of the fatigued consultants this sense of understanding towards patients had clearly waned: *"It's very easy to be compassionate and sympathetic to patients who are clearly unwell, severely injured and so on, it's much more difficult to maintain compassion and sympathy for individuals who have relatively minor injuries but who are ungrateful or making demands, or making complaints"* (F42).

DISCUSSION

Levels of compassion fatigue amongst UK NHS emergency medicine consultants were found to be low. Nevertheless, consultants with worse compassion satisfaction/fatigue scores were more likely to report being irritable with patients or colleagues and reducing their standards of care (with almost a third of consultants reporting these behaviours at least monthly) and were more likely to intend to retire early (nearly 60% of consultants had such plans). Key risk factors included type of workplace (those in designated trauma centres faring better) and number of years worked as a consultant (scores generally worsen over the first 10 years and then improve from 20 years onwards). Key features distinguishing 'satisfied' from 'fatigued' consultants included

having higher perceived control and support at work, which in turn were associated with factors at individual, organisational and job-specific levels.

Previous UK studies with higher response rates have reported mixed findings in relation to whether emergency consultants are particularly at risk of psychological distress[14,15]. Regardless, these were conducted over ten years ago and so may not be relevant given changes within emergency services[16] and increasing patient numbers[1]. Findings from non-UK studies have reported high rates of burnout amongst emergency physicians compared to other physicians[17,18], but levels of job satisfaction and burnout in studies solely including emergency physicians have varied widely[19-21]. The disparity in findings may be for a number of reasons including differences in service configuration between countries or methodological differences, including incomparable outcome measures. The only study to investigate compassion fatigue amongst emergency physicians (in California, N=227) reported higher levels of compassion satisfaction but also higher burnout compared to general population norm data[22]. The associations between work stress and physician performance we report have been previously documented amongst consultants and senior doctors in other specialties[5,11] but have not previously been investigated within emergency care.

The response rate of 52% means the sample is potentially biased[23]. It is impossible to know if responses of the non-respondents would have differed significantly from respondents. This could be in either direction but may mean that the prevalence we report is an underestimate. The 'years as a consultant' finding (that scores improve after 20 years as a consultant) may be due to 'survivor bias' (i.e. those who very unhappy more likely to have stopped working). Interviews were conducted prior to full analysis of the survey data which meant that the key risk factors could not inform the interview sampling frame. However, all except one of the consultants meeting 'fatigued' criteria were interviewed.

This study utilised a total population sampling frame and validated measures to assess prevalence. Furthermore, the mixed methods design has facilitated the creation of an explanatory model that, if further validated, could inform practice. NICE guidelines for promoting mental wellbeing at work[24] include recommendations for strategies and interventions to identify, prevent and treat occupational stress. With further validation, the model we present could help focus interventions on those consultants at most risk and also identifies potentially modifiable aspects of the job and organisation that may protect consultants from compassion fatigue. Furthermore, the ProQOL questionnaire could be a useful tool for monitoring the wellbeing of staff and providing opportunities for early intervention.

There is urgent need for a review of emergency care workforce[25] and the high intensity workload associated with this specialism, to ensure the delivery of safe, high quality compassionate care to the increasing numbers of patients presenting to emergency departments. Strategies suggested by this research could include a review of consultant on-call rota systems to ensure appropriate downtime after periods of intense weekend, evening and night time working. More varied job plans could also assist in reducing intensity and repetitiveness within this role. These strategies plus those targeted at developing individual coping styles and greater team cohesiveness could also help maintain compassion satisfaction into the future.

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Table 1: Characteristics of the sample

Characteristic	Survey respondents N(%)	Interview participants	
		Satisfied Group[A]	Fatigued Group[B]
Gender			
Male	436 (65.8)	2	4
Female	225 (33.9)	4	2
Missing data	2 (0.3)	0	0
Age			
21-29	0	0	0
30-39	216 (32.6)	2	0
40-49	303 (45.7)	4	3
50-59	124 (18.7)	0	3
60+	18 (2.7)	0	0
Missing data	2 (0.3)	0	0
Marital Status			
Married/cohabiting	574 (86.6)	6	5
Widowed	2 (0.3)	0	0
Divorced/separated	27 (4.1)	0	0
Single	58 (8.8)	0	1
Missing data	2 (0.3)	0	0
Number of children aged <18 in household			
None	216 (32.6)	0	1
At least 1	445 (67.1)	6	5
Missing data	2 (0.3)	0	0
Workplace			
Minor injuries/ambulatory	1 (0.2)	0	0
Emergency Dept	524 (79.0)	6	6
Designated major trauma centre	132 (19.9)	0	0
Missing data	6 (0.9)	0	0
Years as consultant			
Mean (SD /range)	7.9 (SD 6.6)	8 (2-16)	10.5 (2-16)
Years in current post			
Mean (SD /range)	6.6 (SD 6.0)	7.2 (2-16)	8.3 (2-16)
Full time (at least 10 sessions)	578 (87.2)	4	4
Part time	79 (11.9)	2	2
Missing data	6 (0.9)	0	0

A - High score in compassion satisfaction and low scores in both elements of compassion fatigue
B – Low score in compassion satisfaction and high score in either element of compassion fatigue (burnout or secondary traumatic stress)

Table 2: Prevalence of compassion fatigue

Component of PROQOL	N (%)
Compassion satisfaction	
Low (≤22)	**15 (2.3)**
Average	527 (79.5)
High	121 (18.3)
Burnout	
Low	139 (21.0)
Average	522 (78.7)
High (>42)	**2 (0.3)**
Secondary traumatic stress	
Low	367 (55.4)
Average	295 (44.5)
High (>42)	**1 (0.2)**

Table 3: Relationship between job/demographic variables and ProQOL outcomes (bivariate analyses)

Variable	n	Compassion satisfaction (tscore)		Burnout (tscore)		Secondary traumatic stress (tscore)	
		Mean (SD)	P	Mean (SD)	p	Mean (SD)	p
Gender							
Male	436	50.8 (8.7)	0.861	50.6 (9.2)	0.550	50.2 (9.8)	0.405
Female	225	51.0 (7.7)		51.0 (8.7)		50.9 (9.1)	
Age							
30-39	216	51.4 (7.3)		49.2 (7.9)		48.7 (9.1)	
40-49	303	50.4 (8.6)	**0.031**	51.9 (9.2)	**<0.001**	50.9 (10.0)	**<0.001**
50-59	124	50.4 (9.5)		51.6 (9.7)		52.7 (9.1)	
60+	18	55.9 (7.4)		43.6 (9.7)		47.8 (7.3)	
Marital Status							
Married/cohabiting	574	50.9 (8.4)		50.5 (9.0)		50.6 (9.8)	
Widowed/ divorced/separated	29	53.0 (8.8)	0.121	49.3 (8.7)	**0.046**	47.7 (7.5)	0.290
Single	58	49.2 (7.8)		53.4 (8.7)		50.5 (8.8)	
Children							
0	216	50.9 (8.3)		50.8 (9.0)		50.1 (9.1)	
1	110	50.5 (8.6)	0.917	50.9 (9.2)	0.986	50.0 (10.5)	0.416
2	215	51.1 (8.5)		50.6 (8.9)		50.3 (9.3)	
3 or more	120	50.8 (8.2)		506. (9.3)		51.8 (10.1	
Workplace							
Minor injuries unit	1	34.3		55.0		48.6	
Emergency Dept	524	50.3 (8.5)	**<0.001**	51.0 (9.2)	0.231	50.4 (9.6)	0.704
Designated trauma centre	132	53.1 (7.4)		49.9 (8.4)		50.7 (9.8)	
Employment							
Full-time	578	50.9 (8.2)	0.634	50.8 (8.9)	0.501	50.5 (9.6)	0.604
Part-time	79	50.3 (9.6)		50.1 (10.0)		49.9 (9.5)	
Years as a consultant							
<5yrs	309	51.7 (7.4)		49.5 (7.8)		49.3 (9.2)	
5-10yrs	149	49.8 (9.0)	0.074*	53.0 (9.7)	**<0.001***	51.8 (10.0)	**0.031***
10-15yrs	95	49.8 (8.9)		51.8 (10.1)		51.2 (10.6)	
>15yrs	104	50.9 (9.4)		50.2 (9.6)		51.5 (9.0)	
Years in current post							
<5yrs	356	51.4 (7.7)		49.9 (8.4)		49.5 (9.4)	
5-10yrs	154	50.1 (8.9)	0.172*	52.8 (9.4)	**0.003***	51.6 (9.9)	**0.039***
10-15yrs	76	49.5 (8.5)		51.9 (9.8)		51.5 (10.6)	
>15yrs	71	51.3 (10.1)		49.5 (9.9)		51.9 (8.6)	

One way ANOVA test (for continuous outcomes a linear regression) * no linear relationship, significant quadratic relationship

Table 4: Multivariate predictors of PROQOL outcomes.

Model	Predictor variable	Coef. (95% CI)	Std.Err.	p
Compassion Satisfaction				
	Being female	0.38 (-1.06, 1.82)	0.73	0.603
	Being separated/divorced/widowed	2.29 (-0.84, 5.42)	1.59	0.151
	Being single	-1.72 (-4.22, 0.79)	1.28	0.179
	Having children	0.12 (-0.54, 0.78)	0.34	0.731
	Working in trauma centre	2.49 (0.90, 4.07)	0.81	0.002
	Working part-time	-0.48 (-2.52, 1.57)	1.04	0.649
	Years as consultant (linear)	-0.18 (-0.30, -0.06)	0.63	0.005
	Years as consultant (curved)	0.02 (0.01, 0.03)	0.01	0.003
Burnout				
	Being female	0.308 (-1.24, 1.85)	0.79	0.696
	Being separated/divorced/widowed	-1.97 (-5.32, 1.39)	1.71	0.25
	Being single	2.88 (0.19, 5.57)	1.37	0.036
	Having children	-0.16 (-0.87, 0.55)	0.36	0.656
	Working in trauma centre	-0.7 (-2.40, 1.01)	0.87	0.422
	Working part-time	-0.91 (-3.11, 1.28)	1.12	0.415
	Years as consultant (linear)	0.29 (0.15, 0.42)	0.07	<0.001
	Years as consultant (curved)	-0.03 (-0.05, -0.02)	0.01	<0.001
Secondary traumatic stress				
	Being female	1.33 (-0.33, 2.99)	0.85	0.116
	Being separated/divorced/widowed	-3.45 (-7.06, 0.17)	1.84	0.061
	Being single	0.67 (-2.22, 3.57)	1.47	0.648
	Having children	0.45 (-0.31, 1.21)	0.39	0.248
	Working in trauma centre	0.49 (-1.34, 2.32)	0.93	0.599
	Working part-time	-1.22 (-3.59, 1.14)	1.20	0.311
	Years as consultant (linear)	0.29 (0.14, 0.43)	0.07	<0.001
	Years as consultant (curved)	-0.02 (-0.03, -0.01)	0.01	0.005

Table 5: Relationship between ProQOL outcomes and hypothesised consequences for patient care (bivariate analyses)

Variable	N	Compassion satisfaction (tscore)		Burnout (tscore)		Secondary traumatic stress (tscore)	
		Mean (SD)	P	Mean (SD)	p	Mean (SD)	p
Irritable with patients							
Never to my knowledge	119	54.2 (8.2)		46.3 (8.9)		47.5 (9.0)	
Once or twice	324	523. (8.1)	**<0.001**	49.0 (8.4)	**<0.001**	48.8 (8.7)	**<0.001**
Monthly	134	47.9 (7.0)		54.0 (7.4)		52.8 (9.3)	
At least weekly	85	45.7 (8.1)		58.3 (7.7)		57.2 (10.1)	
Irritable with work colleagues							
Never to my knowledge	69	55.6 (7.6)		43.4 (8.6)		43.8 (8.7)	
Once or twice	319	52.3 (8.2)	**<0.001**	48.7 (8.2)	**<0.001**	49.1 (8.7)	**<0.001**
Monthly	160	49.8 (7.8)		52.6 (7.7)		51.8 (9.5)	
At least weekly	114	45.4 (7.2)		58.2 (7.2)		56.4 (9.6)	
Reduce standards of care							
Never to my knowledge	160	54.1 (8.6)		47.1 (9.3)		47.4 (9.5)	
Once or twice	287	51.7 (7.8)	**<0.001**	49.5 (7.9)	**<0.001**	49.4 (8.4)	**<0.001**
Monthly	91	48.0 (7.8)		53.2 (8.6)		52.4 (9.2)	
At least weekly	124	47.0 (7.9)		56.4 (8.4)		55.5 (10.5)	
Mistake that count have harmed							
Never to my knowledge	431	51.9 (8.2)		49.4 (8.8)		48.7 (9.0)	
Once or twice	203	49.2 (8.7)	**<0.001***	52.8 (8.9)	**<0.001***	53.0 (9.8)	**<0.001***
Monthly	27	47.6 (7.5)		56.1 (9.5)		58.4 (9.2)	
At least weekly	1	57.3		59.8		62.5	
Mistake that did harm							
Never to my knowledge	590	52.1 (8.4)		50.1 (9.0)		49.8 (9.3)	
Once or twice	68	48.5 (8.1)	**0.011****	55.4 (8.2)	**<0.001****	55.8 (9.8)	**<0.001****
Monthly	4	47.5		56.6		53.8	
At least weekly	1	54.5		47		53.8	
Plans to retire early							**<0.001**
No	263	53.8 (8.3)	**<0.001**	47.6 (9.0)	**<0.001**	48.5 (9.1)	
Yes	399	49.0 (7.9)		52.8 (8.4)		51.7 (9.7)	

One-way ANOVA * 3 group comparison (never vs. once or twice vs. at least monthly); ** 2 group comparison (never vs. ever)